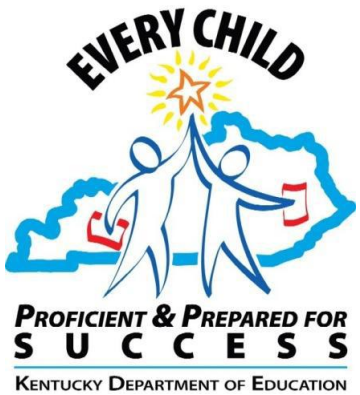
First Grade – Mathematics

Kentucky Core Academic Standards with Targets



Grade Level/ Course: 1st Grade	
Standard with code:	**1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.[2]** **[2] See Common Core State Standards Glossary, Table 1.**
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Represent and solve problems involving addition and subtraction.**
Type: _____Knowledge __X____Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Use a symbol for an unknown number in an addition or subtraction problem within 20	Solve word problems using addition and subtraction within 20 Interprets situations to solve word problems with unknowns in all positions within 20 using addition and subtraction Determines appropriate representations for solving word problems involving different situations using addition and subtraction		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Copyright © 2011 Kentucky Department of Education
The content of this document constitutes original works of authorship owned by the Kentucky Department of Education (KDE) and may not be reproduced without the express, written permission of the KDE.

Grade Level/ Course (HS): 1st Grade	
Standard with code:	**1.OA.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.**
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Represent and solve problems involving addition and subtraction.**

Type: _____Knowledge ___X___Reasoning _____Performance Skill _____ Product

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Know how to add three whole numbers whose sum is less than or equal to 20.	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Copyright © 2011 Kentucky Department of Education
The content of this document constitutes original works of authorship owned by the Kentucky Department of Education (KDE) and may not be reproduced without the express, written permission of the KDE.

Grade Level/ Course: 1st Grade	
Standard with code:	**1.OA.3 Apply properties of operations as strategies to add and subtract.[3]** ***Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)*** ***[3] Students need not use formal terms for these properties.***
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Understand and apply properties of operations and the relationship between addition and subtraction.**
Type: _____Knowledge ___X___Reasoning _____Performance Skill _____Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Explain how properties of operation strategies work.	Apply strategies using properties of operations to solve addition and subtraction problems.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Copyright © 2011 Kentucky Department of Education
The content of this document constitutes original works of authorship owned by the Kentucky Department of Education (KDE) and may not be reproduced without the express, written permission of the KDE.

Grade Level/ Course: 1st Grade	
Standard with code:	**1.OA.4 Understand subtraction as an unknown-addend problem.** ***For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.***
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Understand and apply properties of operations and the relationship between addition and subtraction.**
Type: _____Knowledge __x____Reasoning _____Performance Skill _____Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Identify the unknown in a subtraction problem	Solve subtraction problems to find the missing addend. Explain the relationship of addition and subtraction.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: 1st Grade	
Standard with code:	**1.OA.5 Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).**
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Add and subtract within 20.**
Type: _____ Knowledge ___X___Reasoning _____Performance Skill _____Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Know how to count on and count back.	Explain how counting on and counting back relate to addition and subtraction.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Copyright © 2011 Kentucky Department of Education
The content of this document constitutes original works of authorship owned by the Kentucky Department of Education (KDE) and may not be reproduced without the express, written permission of the KDE.

Grade Level/ Course (HS): 1st Grade	
Standard with code:	**1.OA.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).**
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Add and Subtract within 20.**
Type: _____Knowledge ___ X ___Reasoning ___ ___Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Add fluently within 10. Subtract fluently within 10.	Apply strategies to add and subtract within 20.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: 1st Grade	
Standard with code:	**1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.** ***For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.***
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Work with addition and subtraction equations.**
Type: _____Knowledge ___X___Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Explain the meaning of an equal sign (the quantity on each side of the equality symbol is the same).	Compare the values on each side of an equal sign. Determine if the equation is true or false.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Copyright © 2011 Kentucky Department of Education
The content of this document constitutes original works of authorship owned by the Kentucky Department of Education (KDE) and may not be reproduced without the express, written permission of the KDE.

Grade Level/ Course: 1st Grade	
Standard with code:	**1.OA.8 Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.** ***For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = ▪ – 3, 6 + 6 = ▪ .***
Domain:	**Operations and Algebraic Thinking**
Cluster:	**Work with addition and subtraction equations.**
Type: _____Knowledge ___X___Reasoning _____Performance Skill _____Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Recognize part-part-whole relationships of three whole numbers Example: □ + 5 = 8 5 = □ - 3 In each instance the 3 and 5 represent the parts and the 8 would be representative of the whole.	Determine the missing value in an addition or subtraction equation by using a variety of strategies.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): 1st Grade	
Standard with code:	**1.NBT.1 Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.**
Domain:	**Numbers and Operations in Base Ten**
Cluster:	**Extend the counting sequence**
Type: _____Knowledge _____Reasoning ___X___Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Write numerals up to 120.	Represent a number of objects up to 120 with a written numeral.	Count (saying the number sequence) to 120, starting at any number less than 120 Read the numerals up to 120.	

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): 1st Grade	
Standard with code:	**1.NBT.2abc Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:** **a. 10 can be thought of as a bundle of ten ones — called a "ten."** **b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.** **c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).**
Domain:	**Number and Operations in Base Ten**
Cluster:	**Understand place value.**
Type: _____Knowledge ___X__Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Explain what each digit of a two-digit number represents Identify a bundle of 10 ones as a "ten".	Represent numbers 11 to 19 as composed of a ten and correct number of ones. Represent the numbers 20, 30, 40, 50, 60, 70, 80, and 90 as composed of the correct number of tens.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: 1st Grade	
Standard with code:	**1.NBT.3 Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.**
Domain:	**Number and Operations in Base Ten**
Cluster:	**Understand place value.**
Type: _____Knowledge ___X___Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Identity the value of each digit represented in the two-digit number. Know what each symbol represents >, <, and =.	Compare two two-digit numbers based on meanings of the tens and ones digits. Use >, =, and < symbols to record the results of comparisons.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Copyright © 2011 Kentucky Department of Education
The content of this document constitutes original works of authorship owned by the Kentucky Department of Education (KDE) and may not be reproduced without the express, written permission of the KDE.

Grade Level/ Course: 1st Grade	
Standard with code:	**1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.**
Domain:	**Number and Operations**
Cluster:	**Use place value understanding and properties of operations to add and subtract.**
Type: _____Knowledge ___X___Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Identify the value of each digit of a number within 100. Decompose any number within one hundred into ten(s) and one(s).	Choose an appropriate strategy for solving an addition or subtraction problem within 100. Relate the chosen strategy (using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction) to a written method (equation) and explain the reasoning used. Use composition and decomposition of tens when necessary to add and subtract within 100.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Copyright © 2011 Kentucky Department of Education
The content of this document constitutes original works of authorship owned by the Kentucky Department of Education (KDE) and may not be reproduced without the express, written permission of the KDE.

Grade Level/ Course: 1st Grade	
Standard with code:	**1.NBT.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.**
Domain:	**Number and Operations in Base Ten**
Cluster:	**Use place value understanding and properties of operations to add and subtract.**
Type: _____Knowledge ____X__Reasoning _____Performance Skill _____Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Identify the value of each digit in a number within 100.	Apply knowledge of place value to mentally add or subtract 10 to/from a given two digit number. Explain how to mentally find 10 more or 10 less than the given two-digit number.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: 1st Grade	
Standard with code:	**1.NBT.6 Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.**
Domain:	**Number and Operations in Base Ten**
Cluster:	**Use place value understanding and properties of operations to add and subtract.**
Type: _____Knowledge ____X__Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Identify the value of each digit of a number within 100.	Subtract multiples of 10 in the range of 10-90 from multiples of 10 in the range of 10-90 (positive or zero differences). Choose appropriate strategy (concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction) for solving subtraction problems with multiples of 10. Relate the chosen strategy to a written method (equation) and explain the reasoning used.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course : 1st Grade							
Standard with Code:	**1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.**						
Domain:	**Measurement and Data**						
Cluster:	**Measure lengths indirectly and by iterating length units.**						
Type: _____Knowledge __X_ Reasoning ____ Performance Skill _____Product							
Knowledge Targets		**Reasoning Targets**		**Performance Skill Targets**		**Product Targets**	
Identify the measurement known as the length of an object Directly compare the length of three objects.		Order three objects by length Compare the lengths of two objects indirectly by using a third object to compare them (e.g., if the length of object A is greater than the length of object B, and the length of object B is greater than the length of object C, then the length of object A is greater than the length of object C.)					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course (high School): 1st Grade	
Standard with Code:	**1.MD.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.** ***Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.***
Domain:	**Measurement and Data**
Cluster:	**Measure lengths indirectly and by iterating length units.**
Type: _____Knowledge _____Reasoning __X__Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skill Targets	Product Targets
Knows to use the same size non-standard objects as iterated (repeating) units Know that length can be measured with various units	Compare a smaller unit of measurement to a larger object Determine the length of the measured object to be the number of smaller iterated (repeated) objects that equal its length	Demonstrate the measurement of an object using non-standard units (e.g. paper clips, unifix cubes, etc.) by laying the units of measurement end to end with no gaps or overlaps	

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course: 1st grade	
Standard with Code:	**1.MD.3 Tell and write time in hours and half-hours using analog and digital clocks.**
Domain:	**Measurement and Data**
Cluster:	**Tell and write time.**

Type: ___Knowledge _____Reasoning __X_Performance Skill _____Product

Knowledge Targets	Reasoning Targets	Performance Skill Targets	Product Targets
Recognize that analog and digital clocks are objects that measure time. Know hour hand and minute hand and distinguish between the two.	Determine where the minute hand must be when the time is to the hour (o'clock). Determine where the minute hand must be when the time is to the half hour (thirty).	Tell/Write the time to the hour and half hour correctly using analog and digital clocks – for instance when it is 3:30 the hour hand is between the 3 and the 4; the minute hand is on the 6.	

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): 1st Grade	
Standard with code:	**1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.**
Domain:	**Measurement and Data**
Cluster:	**Represent and interpret data.**
Type: _____Knowledge ___X ___Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Recognize different methods to organize data Recognize different methods to represent data	Organize data with up to three categories Represent data with up to three categories Interpret data representation by asking and answering questions about the data.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): 1st Grade	
Standard with code:	**1.G.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.**
Domain:	**Geometry**
Cluster:	**Reason with shapes and their attributes.**
Type: _____Knowledge _____Reasoning _____Performance Skill __X__Product	

Knowledge Targets	**Reasoning Targets**	**Performance Skills Targets**	**Product Targets**
Identify defining attributes of shapes. Identify non-defining attributes of shapes.	Distinguish between (compare/contrast) defining and non-defining attributes of shapes.		Build shapes to show defining attributes. Draw shapes to show defining attributes.

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): 1st Grade	
Standard with code:	**1.G.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.[4]** **[4]Students do not need to learn formal names such as "right rectangular prism."**
Domain:	**Geometry**
Cluster:	**Reason with shapes and their attributes.**
Type: _____Knowledge _____Reasoning _____Performance Skill ___X___Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Know that shapes can be composed and decomposed to make new shapes Describe properties of original and composite shapes	Determine how the original and created composite shapes are alike and different		Create composite shapes Compose new shapes from a composite shape

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Copyright © 2011 Kentucky Department of Education
The content of this document constitutes original works of authorship owned by the Kentucky Department of Education (KDE) and may not be reproduced without the express, written permission of the KDE.

Grade Level/ Course (HS): 1st Grade	
Standard with code:	**1.G.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths and quarters, and use the phrases half of, fourth of and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.**
Domain:	**Geometry**
Cluster:	**Reason with shapes and their attributes.**
Type: _____Knowledge __X____Reasoning _____Performance Skill _____Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Identify when shares are equal Identify two and four equal shares Describe equal shares using vocabulary: halves, fourths and quarters, half of, fourth of, and quarter of Describe the whole as two of two or four of four equal shares	Justify why dividing, (decomposing) a circle or rectangle into more equal shares creates smaller pieces.		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.